"Express Mail" mailing label number EV 339774044 US

Date of Deposit: November 22, 2004

OIPE JC10 NOV 22 2004 PATENT & TRADEMARK OFFICE

PATENT
CASE NO. 11302/3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application:	)
	)
Olle Olsson	)
	) Group Art Unit: 3745
U.S. Serial No.: 10/031,863	)
	) Examiner: Kershteyn, Igor
Filed: May 6, 2002	)
	)
For: OPERATION DEVICE	)

APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal is in response to the Final Office Action mailed January 20, 2004[1].

[1] Appellant filed a Notice of Appeal and a Petition for Extension of Time (three month extension) on July 20, 2004. Since Appellant is filing a Petition for a two month extension of time concurrently with the filing of the present Appeal Brief, the present Appeal Brief is timely filed.

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I. REAL PARTY IN INTEREST

Besam International HB is the real party of interest in this Appeal pursuant to an assignment of the above-identified application to Besam International HB by Besam AB, which had previously been assigned rights in the invention disclosed in the application by the inventor.

II. RELATED APPEALS AND INTERFERENCES

The undersigned, John C. Freeman, is not aware of any other appeals, interferences or other judicial proceedings that may be related to, would directly affect or be directly affected by or have a bearing on the Board's decision in the pending Appeal.

III. STATUS OF CLAIMS

The status of the claims is as follows:

Claims 1, 4-13 and 16 are finally rejected under 35 U.S.C. § 103(a) for being obvious in view of U.S. Patent No. 5,513,467 to Current et al. and U.S. Patent No. 3,815,361 to Manini.

Claims 2, 3, 14, 15 and 17 are allowed.

The rejection of claims 1, 4-13 and 16 is the subject of this Appeal.

IV. STATUS OF AMENDMENTS

An Amendment to the claims was filed on December 2, 2003, in response to the Non-Final Office Action of June 2, 2003. A Final Office Action was mailed on January 20, 2004. Appellant filed a Notice of Appeal regarding the Final Office Action on July 20, 2004. Appellant has not filed any Amendments in response to the January 20, 2004 Final Office Action.

V. SUMMARY OF CLAIMED SUBJECT MATTER

An understanding of the presently claimed invention can be made upon a review of the embodiments of the invention shown in FIGS. 1 and 2 of the specification. Note that in the description to follow, like elements will employ identical identification numerals.

FIG. 1 shows an embodiment of an operating device 1 that can operate a number of members, such as movable closures that include doors and gates (P. 1, l. 4). The operating device 1 includes a driving device 2 in the form of a speed or non-speed controlled suitably reversible electric motor arranged directly adjacent to a closed case or house 3 (P. 4, ll. 2-4). A drive shaft of the electric motor includes a screw, such as self-locking ball roller screw 4, which sealingly

extends into a closed house 3 (P. 4, ll. 3-6). The drive shaft is drivingly connected to piston-like part 5. Inside the closed house 3, the ball roller screw 4 co-operates with a piston-like part/nut device 5, which is displaceably arranged inside the house 3 (P. 4, ll. 7-8). A second piston-like part 6 is displaceably arranged inside the house 3 against the action of a spring 14 coaxially with the first piston-like part 5 (P. 4, ll. 8-10).

A closed volume 7 is provided, which is limited by the inner wall 8 of the house 3 and the opposing end areas 9 and 10 of the first and second piston-like parts 5 and 6, respectively (P. 4, ll. 10-12). The volume 7 is filled with a pressure/force-transmitting substantially incompressible medium, such as fluid 11, that acts as a pump fluid (P. 4, ll. 12-13 and 16). As shown in FIG. 1, the closed house 3 includes of two cylindrical portions 12, 13 having different diameters (P. 4, ll. 13-14). The portion 12 may be regarded as a pump cylinder and the piston-like part 5 is then regarded as a pump piston (P. 4, ll. 14-15).

The cylindrical portion 13 of the house 3 may be regarded as a slave cylinder or actuator containing the second displaceable piston-like part 6, which is arranged prestressed by a spring (P. 4, ll. 16-18).

An electric motor 2 is arranged to drive the first piston-like part 5 in two opposite directions (P. 4, l. 21). When the electric motor 2 drives the pump piston 5 forwards, in the left direction towards cylindrical portion 13 shown in

FIG. 1, the pump piston 5 presses against the incompressible fluid 11 and transmits a compressive force that acts on the second piston-like part 6 (P. 4, ll. 22-24). The compressive force from the incompressible fluid 11 acts on the second piston-like part 6 in a direction towards a prestressed force of a spring device 14, such as screw spring 14a (P. 4, ll. 24-26). When the electric motor 2, via the pump piston 5 and the incompressible fluid 11, has generated a compressive force on the second piston-like part 6 which exceeds the back-pressure power from the screw spring 14a, a displacement of the second piston-like part 6 is carried out in the left direction of FIG. 1 (P. 4, ll26-29).

As shown in FIG. 1, the second piston-like part 6 includes a hollow piston slotted from one end (not shown) with a rack 15 fixedly arranged on the inside 16 of the piston 6 (P. 4, ll. 31-32). The rack 15 lies along a longitudinal direction that is parallel to the direction of motion of the piston 6 (FIG. 1, P. ll. 32-34). The teeth of the rack 15 are formed in a direction, at an angle with the longitudinal direction, preferably a right angle to the longitudinal direction (P. 4, ll. 33-34). The rack 15 co-operates with a gear-wheel 17, which is arranged on a shaft 18 rotatably mounted in the house 3 and extending through the slotted piston 6 (P. 4, l. 34 – P. 5, l. 2). The shaft 18 is arranged perpendicularly to the direction of motion of the piston 6 transverse through the piston and is thus rotatably received in the surrounding cylinder wall, i.e. the wall of the closed house 3 (P. 5,

ll. 2-4). The opposite end 20 of the shaft 18 passes through a sealed bearing hole in the surrounding cylinder, i.e. the wall of the closed house 3, and forms exterior drive shaft 20, with, for instance, splines (P. 5, ll. 4-6). The outer drive shaft 20 is connected to a transmission, for instance an arm, which transmits a linear or rotary motion to an element (not shown), such as a movable closure that includes a door or gate, to be operated (P. 1, ll. 4-5 and P. 5, ll. 6-8). Thus, the piston-like part 6 is connected to the movable closure via a transmission that may include rack 15, gear-wheel 17 and shaft 18.

The screw 4 runs in the cylinder 5, e.g. in a recess or a bottom hole, and a driving nut 5a is mounted in the piston end adjacent the motor (P. 5, ll. 10-11).

On displacing the second piston-like part 6 in the direction to the left in FIG. 1, the rack 15 is displaced in the same direction, and thereby both the gear wheel 17 and the outer drive shaft end 20 are rotated anti-clockwise in FIG 1 as viewed from the top of the outer drive shaft end 20 (FIG. 1, P. 5, ll. 15-17).

When the electric motor 2 moves the pump piston 5 back, in the direction to the right in FIG. 1, the pressure of the incompressible fluid 11 on the second piston-like part 6 decreases (P. 5, ll. 19-20). When the pressure goes below the preset force of the spring, the spring 14a acts on the piston 6 and moves the piston 6 in the direction to the right in FIG. 1 (P. 5, ll. 20-22).

On displacing the second piston-like part 6 to the right in FIG. 1, the rack 15 is displaced in the same direction, and thereby both the gear wheel 17 and the outer drive shaft/driving nut 20 are rotated clockwise in FIG. 1 as viewed from the top of the outer drive shaft end 20 (FIG. 1, P. 5, ll. 24-26).

The outer end 20 of the drive shaft may thereby transmit rotary motions so that an element (not shown), such as a movable closure that includes a door or a gate, is moved either to the right or to the left, or rotates clockwise or anticlockwise, respectively (P. 1, ll. 4-5 and P. 5, ll. 28-30).

There are no means-plus-function or step-plus-function terms in independent claim 1 and dependent claim 11.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

There is only ground of rejection presented for review:

The ground of rejection for review is the rejection of claims 1, 4-13 and 16 for being obvious under 35 U.S.C. § 103(a) in view of Current et al. and Manini.

VII. ARGUMENT

A. Claims 1, 4-10, 12, 13 and 16

Claims 1, 4-10, 12, 13 and 16 were finally rejected in the Final Office Action of January 20, 2004, under 35 U.S.C. § 103(a) as being obvious in view of Current et al. and Manini. Appellant traverses the rejection. In particular, independent claim 1 recites "a volume formed in the closed house, between the first and second piston-like parts, is filled with a compressive force transmitting medium." The Examiner in the Final Office Action conceded that Current et al. fails to teach the recited volume.

In order to overcome the deficiencies of Current et al., the Final Office Action relied on Manini to provide motivation to "modify the operating device of Current et al. with the use of hydraulic medium for transmitting force to the second piston as taught by Manini for the purpose of reducing high frictional losses" (P. 4, ll. 1-3 of Final Office Action).

The combination of Current et al. and Manini has no merit. The Office Action has identified Current et al.'s piston 72 as corresponding to claim 1's first piston-like part and Current et al.'s piston 106 as corresponding to claim 1's second piston-like part. As shown in the embodiment of FIG. 2 of Current et al.,

the volume of space between Current et al.'s pistons 72 and 106 is occupied by a plug 50, a rod 78 and an annular volume of space surrounding the rod 78. The outer boundary of the annular volume of space is defined by the cylindrical wall 56 of the chamber 54. The Office Action suggests that it would have been obvious to fill the annular volume of space with the hydraulic medium of Manini. However, the Office Action fails to take into account other structure in Current et al. that teaches away from such a combination. In particular, Current et al. discloses using a bearing and sealing wiper arrangement 80 within plug 50 "for ensuring oil from the door closing assembly 50 (located outside the volume of space between pistons 72 and 106) does not enter the separate chamber 54" (Col. 3, ll. 47-50)(parenthetical material and emphasis supplied). In other words, Current et al. expressly states that no oil or any other compressive force transmissive medium is to be present within the annular volume of space. Such a teaching away would dissuade one of ordinary skill in the art from inserting Manini's hydraulic fluid in the annular volume of space of Current et al. Accordingly, the FIG. 2 embodiment of Current et al. in combination with Manini does not render the claims unpatentable.

The FIG. 3 embodiment of Current et al. in combination with Manini also

does not render the claims unpatentable. As characterized in Current et al.:

> [t]he primary difference between the embodiment illustrated in FIG. 2 is that the chamber 54 of the linear drive assembly 48 is incorporated into the hydraulic cylinder 142. Thus, the entire system operates under hydraulic conditions and there is no need to seal the air cylinder from the hydraulic cylinder. Also, the provision of the piston head 74 and rod 78 are also eliminated in this embodiment. (Col. 6, ll. 11-18).

Such changes do not overcome the fact that the combination of the FIG. 3 embodiment of Current et al. and Manini does not render claim 1 unpatentable. In this embodiment, Current et al.'s piston 72 makes physical contact with the piston 106. This contact is necessary so that movement of piston 72 will cause movement of the piston 106. Such contact is contrary to claim 1 which recites "the first and second piston-like parts are displaceable inside the house and are arranged at a distance from each other inside the house" (emphasis supplied). There is no motivation in Current et al. to separate piston 72 from piston 106 since that would prevent piston 106 from moving due to the lack of physical contact with piston 72. Since Manini also does not suggest separating Current et al.'s pistons 72 and 106 from one another, the rejection is improper and should be withdrawn.

The rejection based on the embodiment of FIG. 3 of Current et al. is also improper because there is arguably no volume formed between two piston-like parts that "is filled with a compressive force transmitting medium" as recited in claim 1. As pointed out above, the pistons 72 and 106 necessarily contact one another and so there is no motivation in either Current et al. and Manini to separate Current et al.'s pistons 72 and 106 to form a volume therebetween that is completely filled by a compressive force transmitting medium. Without such motivation, the rejection is improper and should be withdrawn.

Claims 4-10, 12, 13 and 16 depend directly or indirectly on claim 1 and so their rejections should be withdrawn for the same reasons stated above with respect to claim 1.

B. Claim 11

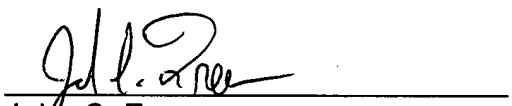
Claim 11 was finally rejected in the Final Office Action of January 20, 2004, under 35 U.S.C. § 103(a) as being obvious in view of Current et al. and Manini. Appellant traverses the rejection for several reasons. First, claim 11 depends indirectly on claim 1 and so its rejection is improper and should be withdrawn for at least the same reasons stated above in Section VII.A with respect to claim 1.

The rejection is improper for the additional reason that claim 11 recites a

transmission that gives linear motion to the movable closure. In contrast, Current et al. discloses that link arm 28 is subjected to a clockwise rotating force from the power door operator. (Col. 3, ll. 1-4). Such a force causes linking arm 28 to rotate in a clockwise direction resulting in the opening of the door 12. (Col. 2, l. 63 – Col. 3, l. 1). The door 12 rotates/pivots about a vertical axis as shown in FIG. 1. There is no disclosure or suggestion in Current et al. to have linking arm 28 provide the door 12 a linear motion. Without such disclosure or motivation, the rejection is improper and should be withdrawn.

For the reasons give above, Appellant respectfully submits that the rejections should be withdrawn and the claims should be allowed.

Respectfully submitted,



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Dated: November 22, 2004

VIII. CLAIMS APPENDIX

1. Operation device for closures comprising:

a driving device;

a closed house;

a first piston-like part and a second piston-like part, wherein the first and second piston-like parts are displaceable inside the house and are arranged at a distance from each other inside the house, and where the driving device is arranged to displace the first piston-like part inside the house and the second piston-like part being connected to an operable element that is connected to a movable closure that moves in response to movement of the second piston-like part; and

wherein a volume formed in the closed house, between the first and the second piston-like parts, is filled with a compressive force transmitting medium.

2. Operation device for closures comprising:

a driving device;

a closed house;

a first piston-like part and a second piston-like part, wherein the first and second piston-like parts are displaceable inside the house and are arranged at a distance from each other inside the house, and where the driving device is arranged to displace the first piston-like part inside the house and the second piston-like part being connected to an operable element;

an electric current-controlled valve is arranged in a wall of the house; and

wherein a volume formed in the closed house, between the first and the second piston-like parts, is filled with a compressive force transmitting medium.

3. Operating device according to claim 2, wherein the electric current-controlled valve is located in the wall of the house, between the first and second piston-like parts but outside the range and movement of the first and second piston-like parts along the wall.

4. Operating device according to claim 1, wherein the first and second piston-like parts are coaxially arranged in relation to each other.

5. Operating device according to claim 1, wherein the force transmitting medium consists essentially of a substantially incompressible fluid.

6. Operating device according to claim 1, wherein the second piston-like part is displaceable against the effect of a spring device arranged in the house.

7. Operating device according to claim 6, wherein the spring device is a screw spring.

8. Operating device according to claim 1, wherein the driving device is an electric motor comprising a drive shaft that is drivingly connected to the first piston-like part.

9. Operating device according to claim 1, wherein the driving device is arranged to drive the first piston-like part in two opposite directions.

10. Operating device according to claim 1, wherein the second piston-like part is connected to the movable closure, which is to be operated, via a transmission.

11. Operating device according to claim 10, wherein the transmission gives the movable closure a linear motion.

12. Operating device according to claim 10, wherein the transmission gives the movable closure a rotary motion.

13. Operating device according to claim 1, wherein the movable closure is a door.

14. Operating device according to claim 2, wherein the operable device is connected to a movable closure that moves in response to movement of the second piston-like part.

15. Operating device according to claim 14, wherein the movable closure is a door.

16. Operating device according to claim 1, wherein the operable device comprises:

a rack connected to the second piston-like part; and

a gear wheel that rotatably engages the rack.

17. Operating device according to claim 2, wherein the operable device comprises:

a rack connected to the second piston-like part; and

a gear wheel that rotatably engages the rack.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.